Use of Pediatric Inspired Protocol in a Case of Adult Philadelphia Negative Acute Lymphoblastic Leukemia

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Context

Philadelphia-negative Acute Lymphoblastic Leukemia (Ph-negative ALL) is a rare hematological malignancy in adults, with poor prognosis, as compared to children, where major improvements have been achieved in the last twenty years.

Objective

Intensive, pediatric-inspired chemotherapeutic regimens have been applied to selected adults, with encouraging cure rates and overall survival. Here is a case successfully managed with intensive pediatric-inspired chemotherapeutic protocol.

Design

A 54-year-old man presents with fatigue, pallor and bruising. He was pancytopenic. Bone marrow aspirate revealed the diagnosis of B Acute Lymphoblastic Leukemia, CD20 negative. Molecular and cytogenetics negative for Philadelphia chromosome t(9;22) or other. The patient had no siblings.

Setting

Performance status (Karnofsky 90%) he was started on St Jude Total XVI pediatric inspired protocol. Induction was provided as outpatient. Prednisone 40 mg/m² (d1-28), Vincristine 1.5 mg/m² (d1, 8, 15, 22), Daunorubicin 25 mg/m² (d1, 8) Pegasparaginase 3.000 U/m², were given. Cyclophosphamide 1000 mg/m² (d22), cytarabine 75 mg/m² (d23-26, 30-33) and thioguanine 60 mg/m² (d22-35) were completed. Two prophylactic triple intrathecal (d1, 15).

At recovery of counts, day 42, bone marrow aspirate revealed complete remission (CR1), with negative Minimal Residual Disease (MRD) by flow cytometry. The protocol followed with Consolidation High Dose Methotrexate 5 g/m² x4, mercaptopurine and prophylactic intrathecal. Maintenance and Reinduction I and II were completed, in the high risk arm, without complications, as outpatient.

Interventions

Trimethoprim/sulfamethoxazole was indicated, per protocol's guidelines. Levofloxacin was indicated at times of severe neutropenia. Therapy was administered through a peripheral line. Close follow up was provided, all time.

During maintenance, Peg-asparaginase was given every two weeks, at 2.500 U/m², with the other chemotherapy agents.

Main Outcome measure/Results

Bone marrow transplant or targeted, immune therapies were not pursued, given MRD good response, at end of induction. Treatment was tolerated with few complications. He is currently at Maintenance week 22, in CR1. Pediatric protocols have shown to be effective in selected adults. Toxicity profiles remain to be determined in this population. Relapse rates and overall survival have to be followed in this high risk population.

Conclusions

Pediatric inspired protocols can be safely and successfully indicated in selected adults with Ph-negative Acute Lymphoblastic Leukemia.

References

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